DISTRIBUTION AND ABUNDANCE OF JUVENILE COHO AND STEELHEAD IN GAZOS, WADDELL AND SCOTT CREEKS IN 1997 AND THE IMPLICATIONS FOR STATUS OF SOUTHERN COHO

Jerry J. Smith
Department of Biological Sciences
San Jose State University
San Jose, CA 95192
27 February 1998

ABSTRACT: In 1997 previously sampled representative sites on Gazos Creek and in the Waddell Creek and Scott Creek watersheds were sampled by electroshocker to assess distribution and abundance of steelhead and 1997 year class coho. No juvenile coho were captured on Gazos or Waddell creeks, apparently continuing the absence of the 3 year brood class since 1991. Juvenile coho density in the Scott Creek watershed recovered to about 1/3 of the high levels found in 1993 and 1996, primarily due to spawning by precocial hatchery-reared females. Coho were relatively abundant on Scott Creek from Big Creek (mile 2.15) upstream to about mile 5.0 and were common on Mill Creek. They were absent or rare in the rest of the watershed, apparently due to redd loss from the severe January storms. All 3 brood year classes on Scott Creek are now relatively strong, while only one is strong, and at least one is missing, on Gazos and Waddell creeks. Coho lengths were about the same as in 1996, and as in previous years, coho were significantly larger than young-of-year steelhead at the same sites, reflecting earlier spawning by coho.

Young-of-year steelhead numbers were similar to previous years, but yearlings were relatively scarce. The reduction in yearling numbers was probably due to higher than usual spring growth and smolting by yearlings because of mild conditions in late winter and spring. The sandbar at Waddell Creek did not permanently close in 1997, but steelhead were abundant and grew fast in the partially-closed lagoon. Although most fish were young-of-year, they were yearling-sized by December.

Mortality of electroshocked fish on the 3 streams and on Redwood Creek in Marin County averaged 0.9%; no juvenile coho were apparently killed. Electroshock sampling should continue, because it provides the most efficient and accurate annual index of steelhead and coho status to guide management actions, including downlisting or delisting.

Recovery of coho is dependent upon management actions which increase the number of streams with coho, the strength and number of brood years in some of the streams, and maintain that geographical and temporal strength through several 3-year brood cycles, despite droughts and floods. If southern coho constitute a metapopulation, where straying maintains genetic diversity and restores weak or lost brood years, an overall 3-year brood cycle numerical goal may be appropriate, with much lower numerical goals for individual streams and brood years.

Table 1 Site locations, habitat types present and sampled, number of steelhead and coho collected and estimated density per 100 feet () at sites on Scott Creek in August and September 1997. (Site #s agree with earlier reports).

Site	Mile >Hwy1	Chan Type	%Hab Avail PL	GL	RN	RF	%Hab Sampl PL	GL	RN	RF	Sample Length	#SHT 0+	1+	COHO
A Near Diversion	0.9	C4	40	45	10	5	80	15	4	2	137'	38 (28)	9 (9)	-
1 <Little Creek	1.9	C3	40	35	15	10	61	29	9	-	127	64 (58)	8 (7)	-
Big Creek	2.15													
2 Pullout >Big Cr.	2.55	C4	45	35	15	5	71	22	6	-	161	91 (63)	9 (6)	37 (30)
3 <Mill Creek	3.05	C4	40	40	15	5	50	42	8	-	97	57 (63)	3 (3)	22 (29)
4 <Swanton Road	3.55	C4	35	45	15	5	60	29	11	-	171	75 (48)	9 (6)	29 (20)
5 Cattle Guard	4.25	C4	35	45	15	5	44	41	16	-	239	96 (47)	13 (6)	21 (11)
7 Pullout <Big Cr. Gate	4.9	C4	35	35	23	7	73	18	9	-	118	63 (80)	7 (6)	27 (24)
9 0.15 mi > bridge	5.15	C4	40	30	20	10	62	24	2	-	97	113 (167)	1 (1)	1 (1)
11 Upper Ford	5.85	C3	40	45	10	5	55	30	15	-	228	69 (33)	9 (4)	-
11A 4th Trail Xing	6.5	B3 B1	35	10	40	15	64	24	12	-	129	80 (76)	17 (14)	1 (.8)
12 Big Cr. Swanton Rd.		C3	20	20	35	25	67	24	9	-	140	90 (77)	7 (5)	-
12A Big Cr. Below Hatchery		B3	25	10	50	15	69	-	31	-	78	34 (45)	10 (13)	-
13 Mill Cr. <Swanton Rd.		C3	45	30	15	10	73	13	14	-	143	128 (102)	15 (12)	7 (6)
Totals											1865'	998	117	145
Mean of 13 Sites			37	21	22	10	64	24	11	0		(68)	(7)	(9.3)

Table 2. Site locations, habitat types present and sampled, number of steelhead collected and estimated density per 100 feet () at sites on Waddell Creek in August and September 1997. (site #s agree with earlier reports).

Site	Mile >Hwy1	Chan Type	%Hab Avail PL	GL	RN	RF	%Hab Sampl PL	GL	RN	RF	Sample Length (feet)	#SHT 0+	1+
2 <Alder Camp	1.35	C4	35	45	10	10	32	68	-	-	188	202 (109)	3 (2)
3 Twin Redwoods	1.8	C4	40	40	15	5	50	26	21	-	170	116 (92)	26 (19)
4 Peri-winkle	2.2	C4	35	40	20	5	75	25	-	-	60	61 (108)	3 (7)
5 Pullout <Herbert	2.6	C3	45	30	20	5	56	41	3	-	178	150 (84)	12 (7)
6 Camp Herbert	3.1	C3	45	25	20	10	82	-	17	1	210	85 (42)	9 (6)
7 E Fork > Ford	3.2	C3	45	25	20	10	85	7	8	-	112	50 (49)	6 (5)
8 W Fork	3.3	C4	35	35	20	10	35	44	9	12	257	112 (51)	5 (2)
9 Mill Site	3.9	C4	45	35	15	5	67	33	-	-	226	91 (53)	3 (1)
10 Trib @ Bridge	4.7	C1 C3	30	35	25	10	48	41	8	2	174	104 (74)	10 (6)
11 HenryCr Trail	5.25	B1	35	25	25	15	81	12	8	-	217	72 (37)	12 (6)
Slippery Falls	5.35												
13 HenryCr >Trail	0.2	F	45	10	25	20	46	36	19	-	81	57 (81)	11 (16)
Totals											1873'	1100	100
Mean of 11 Sites			38	31	21	11	60	30	8	1		(71)	(7)

Table 3. Site locations, habitat types present and sampled, number of steelhead collected and estimated density per 100 feet () at sites on Gazos Creek in August 1997.

Site	Mile >Hwy1	Chan Type	%Hab Avail PL	GL	RN	RF	%Hab Sampl PL	GL	RN	RF	Sample Length	#SHT 0+	1+
1	0.9	C4	30	30	25	15	37	37	19	7	181	24 (15)	14 (8)
2	1.8	C4	25	25	35	15	39	17	23	21	224	48 (22)	20 (11)
Old Woman Creek	2.05												
2A	2.1	C4	30	30	25	15	42	49	10		82	23 (39)	8 (11)
3	3.15	B4	35	15	35	15	58	11	26	5	194	40 (23)	4 (2)
4	4.4	B4	20	35	25	20	49	25	7	19	146	88 (80)	13 (9)
Totals: Mean of 5 Sites			28	27	29	16	45	28	17	10	827'	223 (36)	59 (8)